

Saudi population preferences towards receiving medical bad news in Buraidah city 2020

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ABSTRACT

Background: Breaking bad news from health care providers to patient attendees, need skills to the professionals to deliver the bad news. Same time positive attitude change also required from the population in relation to receiving medical bad news. This is high time to maintain some equilibrium and harmony of understanding is very essential to maintain successful understanding between bad news release person and receiver. Study aimed to explore socio-demographic characteristics, determine the Saudi preferences and attitude towards receiving medical bad news. **Methodology:** A cross sectional study was conducted among the Saudi population aged between 20 - 59 years population. A self-administered validated questionnaire administered to the selected Saudi population. Data entered in Statistical Package for Social Sciences (SPSS) 21.0 version and necessary statistical tests were applied. **Results:** Response rate in the study population was 84.6%. About receiving breaking bad news, 37.8% were received and among them 71.5% revealed the bad news by physicians. 52.6% were preferred as early as possible once the bad news are available and 44.9% were preferred bad news by head of medical team. Statistically significant association was found between attitude of method of breaking bad news versus gender (females 78.4% and males 64.7%, P=0.004). **Conclusions:** Based on the study, majority participants preferred to receive the bad news by themselves first. There is a need of training to the health care providers and also from the public need to accept the bad news in a proper way as a behavioural change is required.

Keywords: Attitude, Preferences, Receiving Breaking bad news, Saudi Population

1. INTRODUCTION

The most prevalent and fundamental definition of the bad news has been defined as "any news that adversely and seriously affects an individual's view of his or her future" (Buckman, 1992). In the medicine perspective, results of genetic tests, disease diagnosis, and recurrence of disease, side-effects of treatment, failure of treatment and prognosis of some diseases outcomes represent some examples of medical bad news (Walter et al., 2000). The discussion regarding the levels of truth provided to the patients regarding



their diagnosis has increased remarkably in the last a few years. The evidences have revealed that patients wish to get more and more information regarding their diagnosis, probability of cure, the side effects of treatment and an accurate assessment of how long they will live (Buckman, 1984). However, the raise in chronic diseases and problems associated to quality of life have enhanced the significance of comprehending the extent to which communicating bad news impacts the patients, their family/guardians in addition to doctors/other professionals (Meredith et al., 1996).

Therefore, providing bad news is really a nerve-wracking moment for physicians as well as patients (Ptacek et al., 1996). By and large, patient must receive high quality medical care, and there should be effective communication between the doctor and patient. It results in affecting patient satisfaction, in terms of certain affective domain such as reduction in the use of pain killers, reduced hospital stay, improved recovery from surgery, and a variety of social, psychological and biological consequences and its acceptance (Ley, 1982). A systematic literature review published in 2009 revealed as four fundamental components of preferences of patients regarding communication of bad news, which include “setting”, “emotional support”, “what and how much information to be provided”, and “manner of communicating bad news” (Fujimori and Uchitomi, 2009). As a result, attitude towards receiving bad news and preferences of patients facilitate the health care providers in selecting the appropriate methods of revealing bad news (Fallowfield, 1993).

The recommendations for breaking bad news concept incorporated by the Saudi Commission for Health Specialists (SCFHS) to residents will play the most important role in communicating medical bad news in Saudi Arabia (Al-Abdi et al., 2011). In view of the above situations and circumstances, need to reinforce the skill of breaking bad news of health care providers and collect the preferences, attitude and experience of receiving bad news from the public timely to know the gravity of the problem.

Objectives

To explore socio demographic characteristics among study sample in Buraidah

To determine the Saudi preferences toward receiving medical bad news and its associations with demographic factors

To identify the attitudes of Saudi population about receiving medical bad news and its associations with demographic variables like age and gender

2. MATERIALS AND METHODS

Study Design and Setting

Buraidah is the capital city of Al-Qassim Region in north central Saudi Arabia. It has a population of 619739 (Saudi General Authority of Statistics Saudi Arabia, 2017). This was a cross sectional study carried out in public places in Buraidah city, Qassim region, due to COVID19 pandemic the study held in open areas, four public parks were selected randomly out of the 12 total numbers of parks of Buraidah by computerized method using <https://www.randomlists.com/random-picker>. The selected names of the parks are mentioned as Al oqailat park, Al Muntazah Park, Alhidyah Park, Aliskan Park.

Sample size

At the time of conducting the study, it has been estimated that the number of total Saudi population living in Buraydah is 466676 and close to 150000 populations may be expatriate non Saudi population (Saudi General Authority of Statistics Saudi Arabia, 2017). The percentage of Saudi population aged 20 – 59 to total Saudi population living in Qassim was 57.93%. So the total number of Saudi male and females 20-59 living in Buraydah was estimated to be 258342. Accordingly, using the Open Epi electronic software, the required sample size estimated was 384 subjects, at 50% prevalence, 95% confidence interval and 5% sample error, design effect as one (Alrukban et al., 2014; Dean , 2021).

Sampling method

A simple random sampling method was done for selection of parks, a convenience, and non probability sampling technique used for selection of participants in the parks. Actual sample frame is difficult to get, so convenience method was preferred in our study.

Study period

The study procedures were performed during the period between October 2020 and June 2021, in the month of June data analysis, interpretation, report writing and review with supervisor done.

Target Population

All Saudi males and females between the age 20-59 living in Buraidah

Data collecting tool

A self-administered questionnaire prepared in Arabic language which has been developed based on previously validated questionnaire. Permission was obtained from the first author to use the questionnaire and also modification. Translation of the questionnaire from English to Arabic language done by Arabic language expert and reviewed by 2 volunteers and similarly back translation was also done. The questionnaire consisted of 21 items under four domains, these included: 1) Socio-demographic characteristics 2) Experience with receiving medical bad news 3) Preferences of participant on receiving the medical bad news 4) Attitude of participants while receiving the medical bad news. In our study we developed the 2nd domain (Experience with receiving medical bad news) which was not included in the previous primary Riyadh study.

The questionnaire items were uploaded on online survey administration software (Google Forms), participants who answered “No” to the question of have you experienced any medical breaking bad news, not eligible to answer the questions about the experience questions domain.

The study procedure

A small booth was designed and developed for the purpose of the study, where the participants were invited to fill out the questionnaire by two trained data collectors. The booth located in each park contained a two tables and chair for the participants. Data was collected directly by eligible participants on their mobile phone, QR code provided to eligible participants so that they can scan the code by their mobile phone camera. Nine participants of non Saudi were excluded from the study, 14 of Saudi participants were refused to sign and participation in our study.

Ethical considerations and quality control measures

After obtaining the Ethical Committee approval from the Regional Research Ethics Committee (REC) in Qassim, then study conducted. All included subjects have voluntarily agreed to participate after discussing the study objectives with them. The completed questionnaires were checked on a daily basis for their consistency and completeness by members of the study team. Participants' data was kept confidential, and it was exclusively employed for the purposes of the study and privacy maintained.

Exclusion criteria

Non Saudi population aged more than 59 years and less than 20 years and non-co-operative participants.

Inclusion criteria

Saudi population aged 20-59 years and able to give verbal consent

Statistical analysis

Data entered in Statistical package for social Sciences (SPSS) 21.0 versions and data was cleaned, later processed for analysis of the data. Qualitative variables were expressed as frequencies and percentages, whereas quantitative variables were presented as means \pm standard deviations (SDs). A Chi-square test was applied to two or more categories of two different variables. Probability (P) value for statistical significance was taken as P less than or equal to 0.05.

3. RESULTS

As per the sample estimation total sample size was 384. Of which, in the study population, a total of 325 Saudi national persons participated. The mean age and standard deviation was 31.47 ± 10.86 . About 55.5% were in the 20-30 years of age group, females were 57.2% in the study population. Among the participants, about 60.0% were completed bachelors degree and majority were students (36.9%) (Table 1). In the current study, about 37.8% were receiving breaking bad news and among them 71.5% revealed the bad news by physicians. About 51.2% were revealed the breaking bad news <5 minutes time and of which, extremely satisfied people with bad news breaking were 36.6% (Table 2).

Table 1 demographic characteristic in the study population.

Demographic factors	Number of participants	Percentage
Age categories		
20-30 years	180	55.5
31-40 years	58	17.8
41-50 years	55	16.9
51-60 years	32	9.8
Gender: Males	139	42.8
Females	186	57.2
Marital status: Married	136	43.3
Single	168	53.5
Others (Divorced/widow/widower)	10	3.1
Education:		
Intermediate	3	0.9
Secondary	56	17.2
Diploma	47	14.5
Bachelors degree	195	60.0
Post graduate & above	24	7.4
Occupation: Military	11	3.4
Government	97	29.8
Private	48	14.8
Student	120	36.9
Unemployed	37	11.4
Others	12	3.7

Table 2- Information about experience of breaking bad news status in study population

Have you received Breaking bad news	Participants response	Percentage
Yes	123	37.8
No	202	62.2
Who revealed the bad news (n-123)		
Physician	88	71.5
Nurse	3	2.4
Administrator	6	4.9
Social worker	10	8.1
Others	16	13.1
How much spared for the breaking bad news (n-123)		
< 5 minutes	63	51.2
5-10 minutes	40	32.5
10 - 15 minutes	8	6.5
> 15 minutes	12	9.8
Are you satisfied with conclusion of talk (n-123)		
Extremely satisfied	45	36.6
Somewhat satisfied	58	47.1
Not satisfied	20	16.3

Table 3 depict that for the question, if the physician have the bad news, about 65.8% of the participants were opined that ready to receive the bad news themselves. In case of bad news, next received are stated as siblings about 27.7%. About 38.5% were

mentioned as while receiving the bad news, preferred as alone. In the study population, about 52.6% were preferred as early as possible once the bad news is available. In the study participants, 44.9% were preferred as head of medical team to break the bad news and 66.2% were expressed as detailed information to receive the bad news. Table 4 stated that in the study population in relation to attitude of participants while receiving bad news, 72.6% were preferred interview method and 48.6% were preferred to start the bad news with Allah's grace and remembrance. In relation to preference of the place, about 71.4% were preferred private place to receive breaking bad news and only 31.7% were revealed that stay and support the breaking bad news person.

Table 3 Preferences of participants while receiving the bad news status

If the physician has bad news, who would like to receive first	Number	Percentage
One of my parents	41	12.6
My wife/husband	46	14.2
One of my kids	2	0.6
One of my siblings	22	6.8
Myself	214	65.8
After receiving who would like to receive next		
One of my parents	76	23.4
My wife/husband	72	22.2
One of my kids	16	4.9
One of my siblings	90	27.7
Nobody	62	19.1
Others	9	2.8
Who would like to be with you, when you receive bad news		
One of my parents	65	20.0
My wife/husband	53	16.3
One of my kids	11	3.4
One of my siblings	70	21.5
Nobody	125	38.5
Others	1	0.3
When would you prefer receiving bad news		
Early as soon as possible	171	52.6
Next day	20	6.2
Waiting for responsible person	134	41.2
Who would you prefer to give the bad news		
Head of medical team	146	44.9
Any member of medical team	75	23.0
Social worker	49	15.1
My best friend	24	7.4
One of my family member	21	6.5
Religious man	10	3.1
How detailed do you prefer to receive the bad news		
Detailed	215	66.2
Brief	64	19.6
The most responsible one should decide	46	14.2

Table 4 Attitude of participants while receiving bad news

If the physician has bad news, which method do you prefer	Number of participants	Percentage
Interview	236	72.6
Mobile	45	13.8
E-mail	3	0.9
Medical Report	41	12.7
Best way to receive the bad news		
Directly without warning or introduction	69	21.3
Start with Allah's will, (grace and remembrance)	158	48.6
Start with introduction that contains information about the disease	67	20.6
Start with warning shot " e.g. unfortunately"	31	9.5
Which place do you prefer to received bad news		
Public place	21	6.5
Private place	232	71.4
Place is not important	72	22.1
What do you prefer, one you tells the bad news		
Leave you alone immediately	81	24.9
Stay with you and support you	103	31.7
Stay and give you more information	106	32.6
Inform one of the family friend and ask them to come	35	10.8

Table 5 depicted that breaking bad news prevalence among the males was 31.7% and females was 42.5%. There was statistically significant association was observed between female gender and breaking bad news (Females: males 42.5% and 31.7% respectively, $P = 0.047$). Bad news received people were more in the age group of 40-59 yrs (44.8%), comparatively < 40 yrs age group. Similarly, among the married people prevalence of breaking bad news was 40.8%. In the study population, majority of the participants from intermediate and post graduation education participants among the bad news received population (100% and 58.3% respectively). There was statistically significant association was observed between different categories of education level versus breaking bad news ($P < 0.05$). Table 6 stated that almost 80% of male preferred to receive the bad news by themselves, in compares to female (55.3%) preferred to receive the bad news by themselves ($P = 0.0001$). Among 142 married participants no one like to let One of his or her kids to receive the bad new first , more than half of those with upto diploma education preferred to receive the bad news from Head of medical team, two third of female they like to receive detailed medical bad news .

Table 5 Experience of breaking bad news in relation to some demographic associations.

Gender	Breaking bad news received	Breaking bad news not received	Total	P value
Male	44 (31.7%)	95 (68.3%)	139 (100%)	X ² -3.958, 1df, P-0.047*
Female	79 (42.5%)	107 (57.5%)	186 (100%)	
Age < 40 yrs	84 (35.3%)	154 (64.7%)	238 (100%)	X ² -2.46, 1df, P-0.117
Age 40-59 yrs	39 (44.8%)	48 (55.2%)	87 (100%)	
Marital Status				
Married	58 (40.8%)	84 (59.2%)	142 (100%)	X ² -0.964, 1df, P-0.326
Single/Divorced/ Widow/Widower	65 (35.5%)	118 (64.5%)	183 (100%)	

Education				X ² -11.649, 4df, P-0.020*
Intermediate	3 (100%)	0 (0%)	3 (100%)	
Secondary	19 (33.9%)	37 (66.1%)	56 (100%)	
Diploma	13 (27.6)	34 (72.4%)	47 (100%)	
Bachelor	74 (37.9%)	121 (62.1%)	195 (100%)	
Post graduates	14 (58.3%)	10 (41.7%)	100%	

*Statistically Significant (P value > or = 0.05)

Table 6 Demo graphic factors association with Preferences of participants while receiving the Bad news

Variables	Male	Female	Married	Single	Upto diploma	Degree & above
<i>Total</i>	139	186	142	183	103	222
If the physician has bad news, who would like to receive first						
One of my parents	12 (8.6%)	29 (15.5%)	5 (3.5%)	36 (19.6%)	15 (14.5%)	26 (11.7%)
My wife/husband	4 (2.8%)	42 (22.5%)	41 (28.8%)	5 (10.9%)	18 (17.4%)	28 (12.61%)
One of my kids	0 (0.0%)	2 (1.07%)	0 (0.0%)	2 (1.9%)	2 (1.9%)	0 (0.0%)
One of my siblings	12 (8.6%)	10 (5.37)	14 (9.8%)	8 (4.3%)	6 (5.8%)	16 (7.2%)
Myself	111 (79.8%)	103 (55.3)	82 (57.7%)	132 (72.1%)	62 (60.1%)	152 (68.4%)
X ² -34.8, 4df, P-0.0001 for gender*; X ² -62.7,4df,P-0.0001 for marital*; X ² -6.870,4df,P-0.143 for education.						
Who would you prefer to give the bad news						
Head of medical team	56 (40.2%)	90 (48.3%)	63 (44.3%)	83 (45.3%)	55 (53.3%)	91 (40.9%)
Any member of medical team	37 (26.6%)	38 (20.4%)	28 (19.7%)	47 (25.6%)	21 (20.3%)	54 (24.3%)
Social worker	18 (12.9%)	31 (16.6%)	31 (21.8%)	18 (9.8%)	15 (14.5%)	34 (15.3%)
My best friend	13 (9.3%)	11 (5.9%)	4 (2.8%)	20 (10.9%)	5 (4.8%)	19 (8.5%)
One of my family member	5 (3.5%)	15 (8.0%)	12 (8.4%)	9 (4.9%)	4 (3.8%)	17 (7.6%)
Religious man	10 (7.1%)	0 (0.0%)	4 (2.8%)	6 (3.2%)	3 (2.9%)	7 (3.1%)
X ² -20.9, 5df, P-0.0001 for gender*; X ² -17.6, 5df, P-0.003 for marital*; X ² -5.78, 5df,. 003 for education*.						
How detailed do you prefer to receive the bad news						
Detailed	81 (58.2%)	134 (72.0%)	89 (62.6%)	126 (68.8%)	69 (66.9%)	146 (65.7%)
Brief	36 (25.8%)	28 (15.0%)	32 (22.5%)	32 (17.4%)	21 (20.3%)	43 (19.3%)
The most responsible one should decide	22 (15.8%)	24 (12.9%)	21 (14.7%)	25 (13.6%)	13 (12.6%)	33 (14.8%)
X ² -7.512, 2df, P-0.023 for gender; X ² -17.6, 5df, P-0.003 for marital*; X ² -1.568, 2df, 0.457 for education.						

*Statistically Significant (P value < or = 0.05)

Table 7 revealed that all of those aged 40 and above preferred to be given the bad news by interview (86.1%) and by medical report (13.9%) only. More than half of females they said the best way to receive the medical bad news by “Start with Allah’s will, (grace and remembrance)” for males (43.8%) preferred the same way. On the other hand, (38.1%) of males preferred to receive the medical bad news directly without warning and only (8.6%) of female preferred that way. The majority of females (41.3%) and males preferred to “Stay and give you more information” after receiving the bad news (figure 1 & 2).

Table 7 Attitude of participants while receiving the Bad news association with demo graphic factors like grouped age and gender.

	Age< 40 yrs	Age>40 yrs	Male	Female
Total	238	87	139	186
If the physician has bad news, which method do you prefer				
Interview	168 (70.5%)	68 (78.2%)	90 (64.7%)	146 (78.4%)
Mobile call	37 (15.5%)	8 (10.2%)	29 (20.8%)	16 (8.6%)
E-mail	3 (1.2%)	0 (0.0%)	0 (0.0%)	3 (1.6%)
Medical Report	30 (12.6%)	11 (12.6%)	20 (14.3%)	21 (11.2%)
X ² -13.5, 3df, P-0.004* for gender; X ² -3.45, 3df, P-.327 for age;				
Best way to receive the bad news				
Directly without warning or introduction	51 (21.4%)	18 (22.7%)	53 (38.1%)	16 (8.6%)
Start with Allah’s will, (grace and remembrance)	108 (45.3%)	50 (63.2%)	61 (43.8%)	97 (52.1%)
Start with introduction that contains information about the disease	55 (23.1%)	12 (15.1%)	12 (8.6%)	55 (29.5%)
Start with warning shot “ e.g. unfortunately“	24 (10.0%)	7 (8.8%)	13 (9.3%)	18 (9.6%)
X ² -50.7, 3df, P-0.0001 for gender*; X ² -4.89, 3df, P-0.180 for age.				
What do you prefer, one you tells the bad news				
Leave you alone immediately	62 (26.0%)	19 (24.0%)	54 (38.8%)	27 (14.5%)
Stay with you and support you	73 (30.6%)	30 (37.9%)	49 (35.2%)	54 (29.0%)
Stay and give you more information	81 (34.0%)	25 (31.6%)	29 (20.8%)	77 (41.3%)
Inform one of the family friend and ask them to come	22 (9.2%)	13 (16.4%)	7 (5.0%)	28 (15.0%)
X ² -37.5, 3df, P-0.0001 for gender*; X ² -3.215, 3df, P-0.360 for age.				

Statistically Significant (P value < or = 0.05)

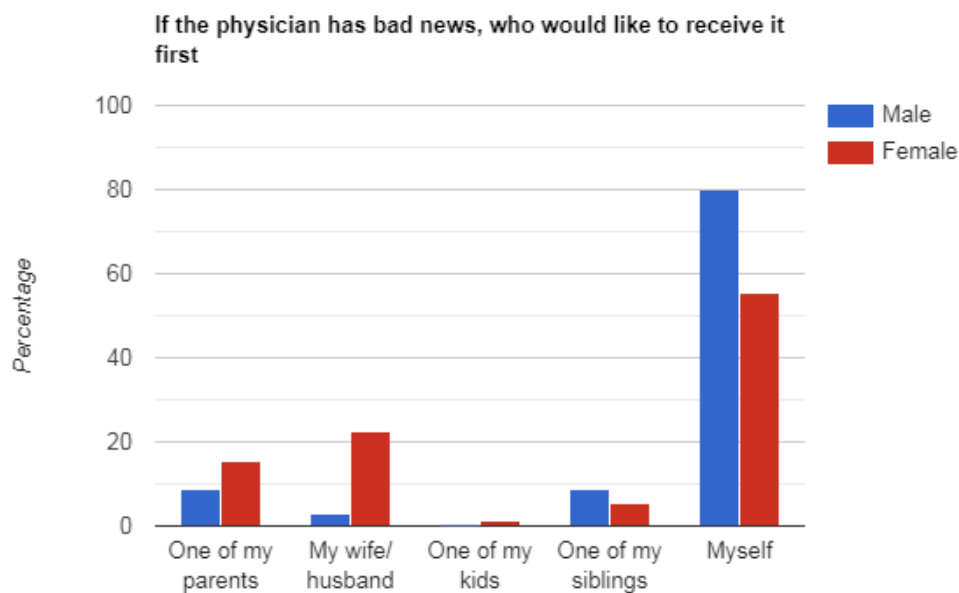


Figure 1 Preferences of participants while receiving the Bad news.

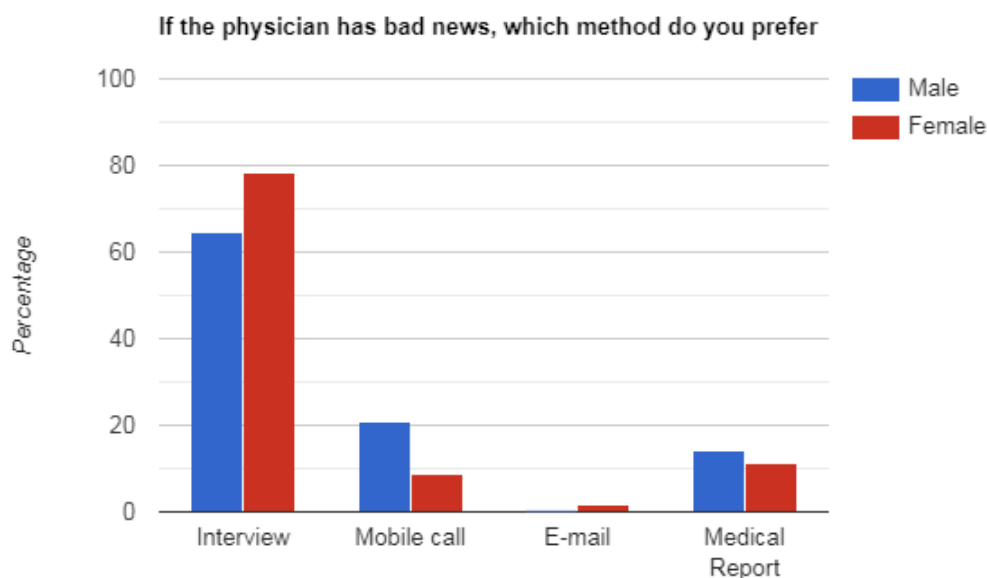


Figure 2 Attitude of participants while receiving the Bad news

4. DISCUSSION

This study provides a profitable Saudi experience, preferences and attitudes toward receiving medical bad news. There are few studies conducted on breaking bad news topic, preferences and attitude towards receiving the medical bad news in the world including Saudi Arabia. Out of all these studies, different authors used different criteria for identification of breaking bad news practices and tools. Some authors like Seifart et al used the study instrument as "SPIKES " strategy (Setting, Preferences, Invitation, Knowledge, Emotions and Summary) to deliver the bad news events to patients and their relatives (Seifart et al., 2014). Thirty seven percent of the respondents were received bad news on their life; this result close to two different studies conducted In Pakistan (Ishaque et al., 2010) and Portugal (Gonçalves et al., 2005). The study of Ishaque et al., (2010) which was conducted in the Community Health Centre of a tertiary care teaching hospital in Pakistan, they interviewed 400 participants whom aged between 18 to 60 years old, they found (59%) of the respondents were able to recall an incident in the past where doctor had broke bad news to them.

In our study we found 36.6% of the participants expressed extremely satisfied with conclusion of talk with breaking bad news. A study conducted in Poland in the year 2017 among 314 sample among bad news received population expressed their views as almost fifty percent of the patients (47%) said that doctors delivered bad news in a proper way (Sobczak, 2018). Another study conducted by Gonçalves et al., (2005) at palliative care of Oncology Centre in Portuguese and they revealed that about diagnosis disclosure received two thirds of the participants from the Doctor. In our study, 65% of the participants were ready to receive the bad news by themselves (Figure 1) which was very similar result of locally conducted study in Riyadh by Alrukban et al., (2014) they found (67%) of 1125 responders preferred to receive the bad news when the situation arises by themselves and study conducted in India as well as study conducted in Iran revealed that total of 90% participants interested to know any bad news and 72% of care givers planned to reveal adverse news (Ghoshal et al., 2019; Aminiahadashti and Mousavi, 2016). In such scenario, health professional must include the patients as a decision maker, sometimes health professionals may exhibits paternalistic attitude that leads to false decisions (Redmond, 1998).

Most patients about two thirds (61%) preferred to be with a family member when the bad news given to them, this result very close approximately to study conducted in 2005 by oncologist specialists in Palliative Care Unit, Portuguese Institute of Oncology (Gonçalves et al., 2005). Furthermore, in our current study, seventy-two percent of our participants (236/325) preferred face to face interview with the bad news provider over receiving the bad news by call, E-mail or medical report (Figure 2). A study conducted by neonatologists in Saudi Arabia they revealed that 88% of Saudi mother with newborn bad news, they found that 88% preferred to receive the bad news over telephone (Al-Abdi and Al-Ali, 2011). By contrast to a study conducted in Riyadh city which is near to our study area, they found only 42 % of responder's preferred face to face interview and the majority preferred to receive the bad news by telephone call. This could be due to selection of the participants included from universities, hospitals and malls and study setting difference in spite of having similar social and cultural characteristics between the two communities (Alrukban et al., 2014).

An interesting fact in our study stated that among 136 (43.3%) married participants, no participant was revealed that one of his or her kids to receive the bad news first, this aspect was supported by the study conducted in Riyadh among universities and some prominent public places, they found that only 3% of participants preferred to let one of his or her kids to receive the bad new first (Alrukban et al., 2014). Majority of the our study participants just above half of the participants (52%) shown that they prefer to receive the bad news as soon as possible, a study conducted in Egypt by pediatric neurologists found that majority of parents prefer to know the diagnosis of their child as soon as possible (Abdelmokter and Abd Elhamed, 2012). The participants of our study stated that about 31.7% (103/325) participants wanted from the bad news provider to stay with them after relieving the bad news and to provide psychological support and to give more information about the disease, this way is essential step mentioned by spike model and highlighted the study conducted in Germany (Buckman, 1992; Seifart et al., 2014).

In our present study, we found a statistically significant association in the relationship between gender of the respondents (female's 42.5% vs males 31.7%) and experience of breaking bad news. Another significant association both gender as well as marital status with preferences of participants and attitude of the participants while receiving the bad news ($P < 0.001$). Similar significant findings were observed with study conducted in Riyadh and this could be due to close geographical area and similar culture in the country (Alrukban and Albadr, 2014). On the whole in several day to day situations, need to break the bad news to the populations ranging from small illness, certain disease diagnosis, prognosis of the disease, cancers, severe illness where it endangers the life and sudden death of the patients, Health care professionals need to reveal the bad news. In such circumstances, trained and senior doctor tactfully deliver the news based on their emotions, feelings, literacy and cultural ground, same time health care professionals expect some good behaviours and attitude to receive the bad news in a smooth way is required (Larkin and Searight, 2014; Searight and Gafford, 2005).

Some of the limitations in the present study mentioned as during COVID-19 period, difficulty in facing the data collection from participants, as stringent measures were going on to prevent the transmission of COVID-19 disease. Second limitation was in our study taken only population visited to parks considered for data collection as a public places. We have not considered for other places like mosques, shopping malls etc.

5. CONCLUSION

Based on the results of our study, most participants preferred to receive the bad news by themselves first and to be revealed by the head of the medical team. At the same time they declared that as they best to know about all the details of bad news availability as soon as possible.

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Author Contributions

Fahad Mohammed A Alkhuzayyim contributed in the design of the study, data collection and drafting of the manuscript. Chandra Sekhar Kalevaru contributed in reviewing and editing the manuscript and supervision.

Ethical approval

The study was approved by the Regional Research Ethics Committee at National Committee of Bio & Med. Ethics (NCBE) Qassim region, Ministry of Health, kingdom of Saudi Arabia (ethical approval code: 1442-2112894).

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Conflict of Interest

The authors declare that there are no conflicts of interests.

Data and materials availability

All data associated with this study are present in the paper.

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